

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING
A FILING UNDER 35 U.S.C. 371**

2202/50165

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

09/869526INTERNATIONAL APPLICATION NO.
PCT/FR99/02992INTERNATIONAL FILING DATE
2 December 1999PRIORITY DATE CLAIMED
29 December 1998

TITLE OF INVENTION

DEVICE AND METHOD FOR PROTECTING SENSITIVE DATA AND FRANKING MACHINE USING THEM

APPLICANT(S) FOR DO/EO/US

Jean-Marc DERY and Frédéric L'HOTE

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ has been transmitted by the International Bureau
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) (unexecuted).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Item 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:
 - a. 3 sheets of drawings show Figs. 1-3; and
 - b. International Search Report.

**23911**

PATENT TRADEMARK OFFICE

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) <div style="font-size: 2em; font-weight: bold; margin-top: 5px;">097869526</div>		INTERNATIONAL APPLICATION NO PCT/FR99/02992		ATTORNEY'S DOCKET NUMBER 2202/50165																																									
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NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.																																													
SEND ALL CORRESPONDENCE TO: Crowell & Moring, L.L.P.. P.O. Box 14300 Washington, D.C. 20044-4300 Tel. No. (202) 628-8800 Fax No. (202) 628-8844				<div style="text-align: center;"> </div> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td style="width:50%;">SIGNATURE</td><td style="width:50%;">Jeffrey D. Sanok</td></tr> <tr><td>NAME</td><td>32,169</td></tr> <tr><td>REGISTRATION NUMBER</td><td>June 29, 2001</td></tr> <tr><td>DATE</td><td></td></tr> </table> <div style="text-align: right; margin-top: 5px;">JDS:pct</div>		SIGNATURE	Jeffrey D. Sanok	NAME	32,169	REGISTRATION NUMBER	June 29, 2001	DATE																																	
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Attorney Docket: 2202/50165
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: JEAN-MARC DERY

Serial No.: NOT YET ASSIGNED PCT NO.: PCT/FR99/02992

Filed: JUNE 29, 2001

Title: DEVICE AND METHOD FOR PROTECTING SENSITIVE DATA
AND FRANKING MACHINE USING THEM

PRELIMINARY AMENDMENT

Box PCT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Please enter the following amendments to the specification,
claims and abstract prior to the examination of the application.

IN THE SPECIFICATION:

Please amend the specification as follows:

Page 1, after the title, insert the following heading:

--BACKGROUND AND SUMMARY OF THE INVENTION--.

Page 2, between lines 18 and 19, insert the following
heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--; and

between lines 30 and 31, insert the following
heading:

--DETAILED DESCRIPTION OF THE DRAWINGS--.

IN THE CLAIMS:

Please amend claims 3, 6 and 7 as follows:

(A copy of the marked-up version of amended claims are attached to this Preliminary Amendment).

3. (Amended) A protection method according to claim 1, characterized in that each routine operating on said data implements said verification operation (400).

6. (Amended) A protection device according to claim 4, characterized in that each routine operating on said data implements said verification system (104, 105, 106).

7. (Amended) A franking machine (1), characterized in that it includes a device according to claim 4.

Please add new claims 8-11 as follows:

--8. A protection method according to claim 2, characterized in that each routine operating on said data implements said verification operation (400).

9. A protection device according to claim 5, characterized in that each routine operating on said data implements said verification system (104, 105, 106).

Serial No.

10. A franking machine (1), characterized in that it includes a device according to claim 5.

11. A franking machine (1), characterized in that it includes a device according to claim 6.--

IN THE ABSTRACT:

Please add an Abstract of the Disclosure submitted herewith on a separate page.

Serial No.

REMARKS

Entry of the amendments to the specification, claims and abstract before examination of the application is respectfully requested.

If there are any questions regarding this Preliminary Amendment or this application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees, be charged, or any overpayment in fees be credited, to the Account of Crowell & Moring, L.L.P., Deposit Account No. 05-1323 (Docket #2202/50165).

Respectfully submitted,

June 29, 2001



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Registration No. 32,169

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JDS:pct

--ABSTRACT OF THE DISCLOSURE

The invention concerns a method for protecting data sensitive to the use of a routine acting on the data. It comprises an operation, performed by said routine, an operation which consists in verifying the identity of each software task invoking said routine. Preferably, said verification operation comprises an operation which consists in reading an identifier of said task and an operation which consists in comparing said identifier with predetermined identifiers.--

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please amend claims 3, 6 and 7 as follows:

3. (Amended) A protection method according to [either] claim 1 [or claim 2], characterized in that each routine operating on said data implements said verification operation (400).

6. (Amended) A protection device according to [either] claim 4 [or claim 5], characterized in that each routine operating on said data implements said verification system (104, 105, 106).

7. (Amended) A franking machine (1), characterized in that it includes a device according to [any of claims 4 to 6] claim 4.

Device and method for protecting sensitive data and franking machine using them

5 The present invention relates to a device and a method for protecting sensitive data and to a franking machine using them.

10 It applies in particular to franking machines with a program running in a multitask environment and more generally to the protection of sensitive data, for example data representing amounts of money, or of sensitive tasks manipulating the sensitive data.

15 In a multitask environment, each task can invoke each routine, regardless of the security necessary for said routine. In a franking machine, some tasks manipulate quantities representing amounts of money. In particular, the phases of operating or recharging a franking machine use the routines that manipulate amounts of money.

20 The correct execution of each of these tasks must be guaranteed. By "correct execution" is meant the fact that a task executes in the normal context of operation of the machine. In other words, the invention seeks to prevent that sensitive data be degraded or modified inopportunately.

25 To this end, the present invention aims to have at least one routine operating on sensitive data verify the identity of tasks that invoke it.

Accordingly, if an unauthorized task attempts to invoke said routine, the latter can limit its execution and therefore prevent harm to the sensitive data concerned.

30 According to a first aspect, the present invention provides a method of protecting sensitive data against use of a routine operating on said data, characterized in that it includes an operation of verifying the identity of each software task calling said routine, which operation is
35 implemented by said routine.

Thanks to these features, if an unauthorized task is used to access said routine which uses sensitive data, on verifying its identity, that routine detects that it is not authorized and it prevents access to the sensitive data concerned.

In the case of a franking machine, for example, the routines concerned include the routine for incrementing the counter for the franking amount consumed and decrementing the counter for the remaining available franking amount and the routine for incrementing the counter for the number of franking operations effected.

In accordance with particular features, said verification operation includes an operation of reading an identifier of said task and an operation of comparing said identifier with predetermined identifiers.

Thanks to these features, all the tasks authorized to use the routine in question are identified in a particular list, which facilitates programming the routine and updating the programming.

According to other particular features, each routine operating on said data implements said verification operation.

Thanks to these features, whichever routine attempts to access the sensitive data, the protection offered by the present invention is assured by said routine.

According to a second aspect, the present invention provides a device for protecting sensitive data against use of a routine operating on said data, characterized in that it includes a verification system adapted to verify the identity of each software task calling said routine, said verification system being implemented by said routine.

The invention also provides a franking machine characterized in that it includes a device as succinctly

described above.

The invention is also directed to:

- a system for storing information readable by a computer or a microprocessor storing instructions of a computer program, characterized in that it enables to implement the method according to the invention as succinctly described hereinabove, and

- a partly or completely removable system for storing information readable by a computer or a microprocessor storing instructions of a computer program, characterized in that it enables to implement the method according to the invention as succinctly described hereinabove.

The above device, the above franking machine and the above storage system having the same particular features and the same advantages as the method succinctly described hereinabove, the advantages are not described again here.

Other advantages, objects and features will emerge from the following description, which is given with reference to the accompanying drawings, in which:

- figures 1A and 1B are respectively a plan view and an elevation view of a franking machine using the device and the method of protecting data which are the subject-matter of the invention,

- figure 2 represents schematically an electronic circuit incorporated in the franking machine shown in figures 1A and 1B, and

- figure 3 shows an operation algorithm of the electronic circuit shown in figure 2.

The franking machine 1 shown in the drawings (figures 1A and 1B) includes a device for printing a franking mark and an optional destination address on a flat object such as a letter 2.

In order to print the franking mark in the

standardized place provided for this purpose, the letter 2 must be passed through a corridor 5 included in the machine 1, said corridor being delimited by members fastened to the frame, respectively a sliding support 6 which forms the ceiling of the corridor 5, a table 7 which forms its floor, and a ramp which forms a lateral limit thereof, the corridor being open at the end opposite the ramp.

In order to insert the letter 2 into the corridor 5, the letter is placed on the part of the table 7 which projects on the insertion side (the side seen on the left in figure 1B), after which the letter is inserted into the corridor 5, as shown in figures 1A and 1B, until it is driven by the means provided for this purpose in the machine 1. The printing of the franking mark is performed automatically while the letter 2 is driven in the corridor 5, the franked letter being expelled from the machine at the other end of the corridor 5 (the end seen on the right in figure 1B).

For driving the letter 2, the machine 1 includes two rollers 9 and 10, each passing through an opening in the table 7, and respective pressure rollers 12 and 13 for the rollers 9 and 10, each passing through an opening in the support 6.

The rollers 9 and 10 are rotatably mounted with respect to the frame of the machine 1, through a suspension system 14 shown diagrammatically in figure 1B.

The pressure rollers 12 and 13 are rotatably mounted on the frame of the machine 1, without being suspended therefrom. An electric motor, not shown, is used to drive synchronous rotation of the pressure rollers 12 and 13, for example through a belt (not shown) running around three pulleys respectively carried by the motor, the pressure roller 12 and the pressure roller 13.

Because the suspension system 14 urges the rollers 9 and 10 toward the support 6, and therefore toward the

pressure rollers 12 and 13, the rollers 9 and 10 are driven by friction against the pressure rollers 12 and 13, either directly or through an object passing through the machine 1, such as the letter 2.

5 When the letter 2 is inserted into the corridor 5 in the manner shown in figure 1B, it eventually encounters the roller 9 and then the pressure roller 12, which drives it in the direction indicated in figure 1B by the horizontal arrow oriented from left to right. At the same time, the roller 9 is lowered whereas the letter 2 is inserted between the rollers 9 and 12, so that the letter 2 moves forward in the machine 1 with its face 4 to be printed pressed against and sliding along the surface 17 of the sliding support 6.

10 15 For printing the franking mark in its corresponding standardized place and/or the destination address in its corresponding standardized place, the machine 1 includes a printing system 19, shown quite diagrammatically in figures 1A and 1B.

20 25 Generally speaking, the printing system 19 applies the franking mark while the letter 2 or the object to be franked is travelling through the machine 1 with its face to be printed pressed against the surface 17 of the sliding support 6, the printing system 19 being located between the pressure rollers 12 and 13.

In the example shown, the printing system 19 is mounted directly on the frame of the machine and is therefore fixed relative to the sliding support 6.

30 In order for the printing system 19 to be controlled synchronously with forward movement of the object in the machine, there is provided a detector (referenced 110 in figure 2) of the presence of the object which triggers a printing process running automatically.

35 To be more precise, there is a first presence detector that causes the motor (not shown) to be started

when an object begins to be inserted into the machine 1, and a second presence detector (not shown) that triggers the printing process when the object has reached a predetermined location.

Figure 2 shows an electronic circuit for controlling the device has shown in figures 1A and 1B. The circuit 100 is illustrated in the form of a block diagram. It includes, connected together by an address and data bus 102:

- a central processing unit 106,
- a random access memory (RAM) 104,
- a read-only memory (ROM) 105,
- an input/output port 103 for receiving:
 - the weight of the postal object to be franked, and
 - detection of the postal object by each of the detectors (not shown in the figures),and for transmitting:
 - motor control signals,and, independently of the bus 102:
 - stepper motors 109;
 - presence detectors 110;
 - a display screen 108 connected to the input/output port 103,
 - scales 112 connected to the input/output port 103 and supplying bytes representing the weight of a postal object,
 - a keypad 101 connected to the input/output port 103 and supplying bytes representing successively pressed keys of the keypad, and
 - a printing controller 120 controlling the operation of the printing system 19.

Each of the components shown in figure 2 is well known to the person skilled in the art of franking machines having a microprocessor circuit and, more generally, information processing systems. Those components are

therefore not described here.

The random-access memory 104 stores data, variables and intermediate processing results in memory registers which, in the remainder of the description, carry the same name as the data whose value they store. The random-access memory 104 includes notably registers storing information representing the weight of the postal object to be franked, the format of the postal object currently being processed, the number of postal objects in the batch currently being processed, up-counter and down-counter values that correspond to franking amounts already applied and remaining to be applied before recharging the machine. The latter registers operate according to techniques that are known in the field of franking machines (during each franking operation, when the down-counter amount is greater than the amount of the franking mark to be applied, it is decremented by the amount of that mark and the up-counter is incremented by the same amount).

The read-only memory 105 is adapted to store the operating program of the central processing unit 106 in a register labeled "*program1*", and the data needed for operation of that program as well as a correspondence table relating weights and franking amounts.

The read-only memory 105 also stores in a register labeled "*identifier_list*" a list of identifiers of software tasks authorized to access the routines that use sensitive data (e.g. franking amounts).

The memory 105 referred to as a "read-only memory" is in fact a rewriteable memory that is not erased when the device is turned off. It can be rewritten only by authorized personnel using secure procedures, so that for the everyday user it is just like a read-only memory.

The central processing unit 106 is adapted to use the program stored in read-only memory 105. An operating algorithm of that program is shown in figure 3.

The software (program) of the franking machine is a multitask software, which implies allocation by the processor of a memory space (stack) associated with each task. This memory space is included in the random access memory 104.

During an operation 301:

- the electronic card 10 is initialized by the central processing unit 106, using known techniques, and
- the central processing unit 106 assigns an identifier (e.g. a number) to each task of the application.

During an operation 302, the central unit 106 runs a program portion that does not necessitate any call to a routine using sensitive data.

During an operation 303, the central unit 106 implements a task that calls one of the routines that use sensitive data.

During an operation 304, the routine 400 in question (shown in dashed line) reads the identifier of the task currently being run by calling a so-called "system" routine of a known type, intended for that read operation.

Then, during a test 305, the routine 400 compares the identifier of the task to the content of the list of identifiers stored in the read-only memory 105 and determines whether that task identifier is in the list.

When the result of the test 305 is positive, the task is authorized to access the routine and the use of sensitive data is executed during an operation 306. The central unit 106 then returns to the operation represented by the reference 302.

When the result of the test 305 is negative, the task is not authorized to access the routine. The operation of the central unit 106 is then stopped, and an alarm is tripped (operation 307), until the franking machine is powered down (operation 308).

Thus, the method of protecting sensitive data

against use of a routine operating on said data, provided by the present invention, includes an operation 400 of verifying the identity of each software task calling said routine, which operation is implemented by said routine.

5 Thus, thanks to the organization of the task 400, and in particular thanks to the monitoring of the identity of the tasks that call it, the modification of the sensitive data by means of this routine is impossible.

10 As a variant, the routines 400 (i.e. the routines that verify the identity of the task calling them before accessing sensitive data) include not only the routines that access the franking amount counters but also routines operating on statistical data or operating parameters of the franking machine.

15 In the embodiment described and shown, said verification operation 400 includes an operation 304 of reading an identifier of said task and an operation 305 of comparing said identifier with predetermined identifiers.

20 In the embodiment described and shown, each routine operating on sensitive data implements said verification operation 400.

25 The device for protecting sensitive data against use of a routine operating on said data is characterized in that it includes as a verification system the central unit 106, associated with memories 104 and 105, for verifying the identity of each software task calling said routine, this verification system being implemented by said routine.

CLAIMS

1. A method of protecting sensitive data against use of a routine operating on said data, characterized in that it includes an operation of verifying the identity of each software task calling said routine (400), which operation is implemented by said routine.

2. A protection method according to claim 1, characterized in that said verification operation (400) includes an operation of reading an identifier of said task (304) and an operation of comparing (305) said identifier with predetermined identifiers.

3. A protection method according to either claim 1 or claim 2, characterized in that each routine operating on said data implements said verification operation (400).

4. A device for protecting sensitive data against use of a routine operating on said data, characterized in that it includes a verification system (104, 105, 106) adapted to verify the identity of each software task calling said routine, said verification system being implemented by said routine.

5. A protection device according to claim 4, characterized in that said verification system (104, 105, 106) includes a reading system (104, 105, 106) for reading an identifier of said task and a comparator system (104, 105, 106) for comparing said identifier and predetermined identifiers.

6. A protection device according to either claim 4 or claim 5, characterized in that each routine operating on said data implements said verification system (104, 105, 106).

7. A franking machine (1), characterized in that it includes a device according to any of claims 4 to 6.

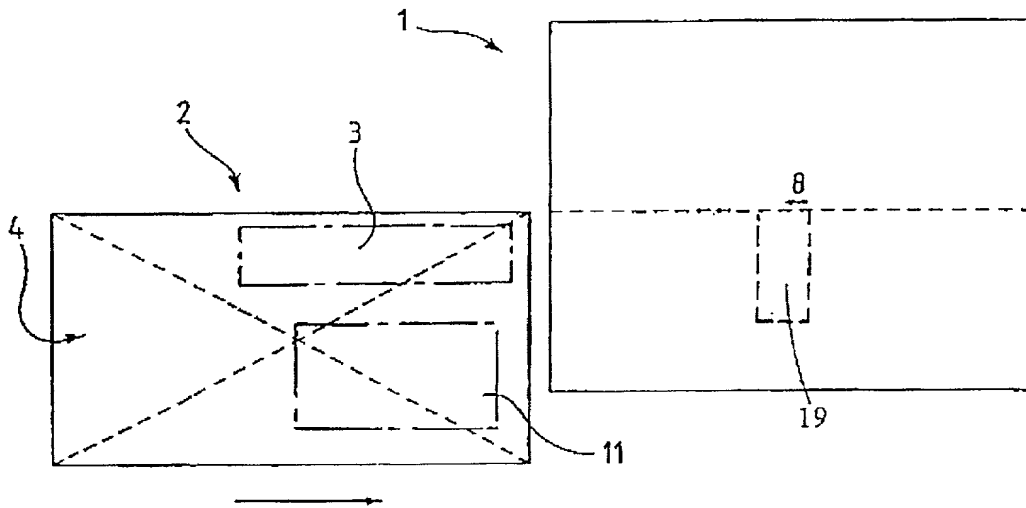


Fig. 1A

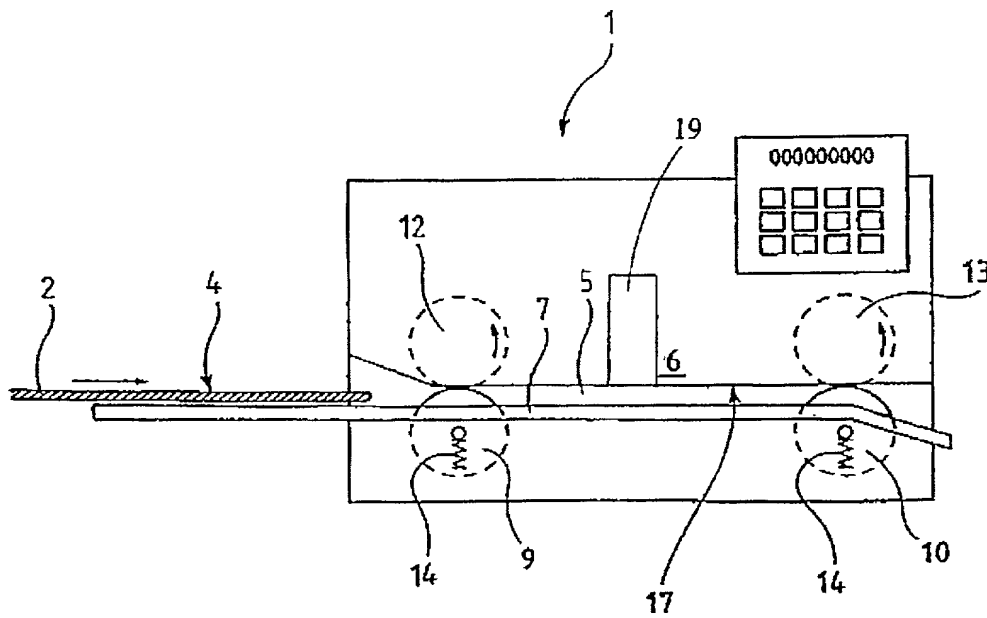


Fig. 1B

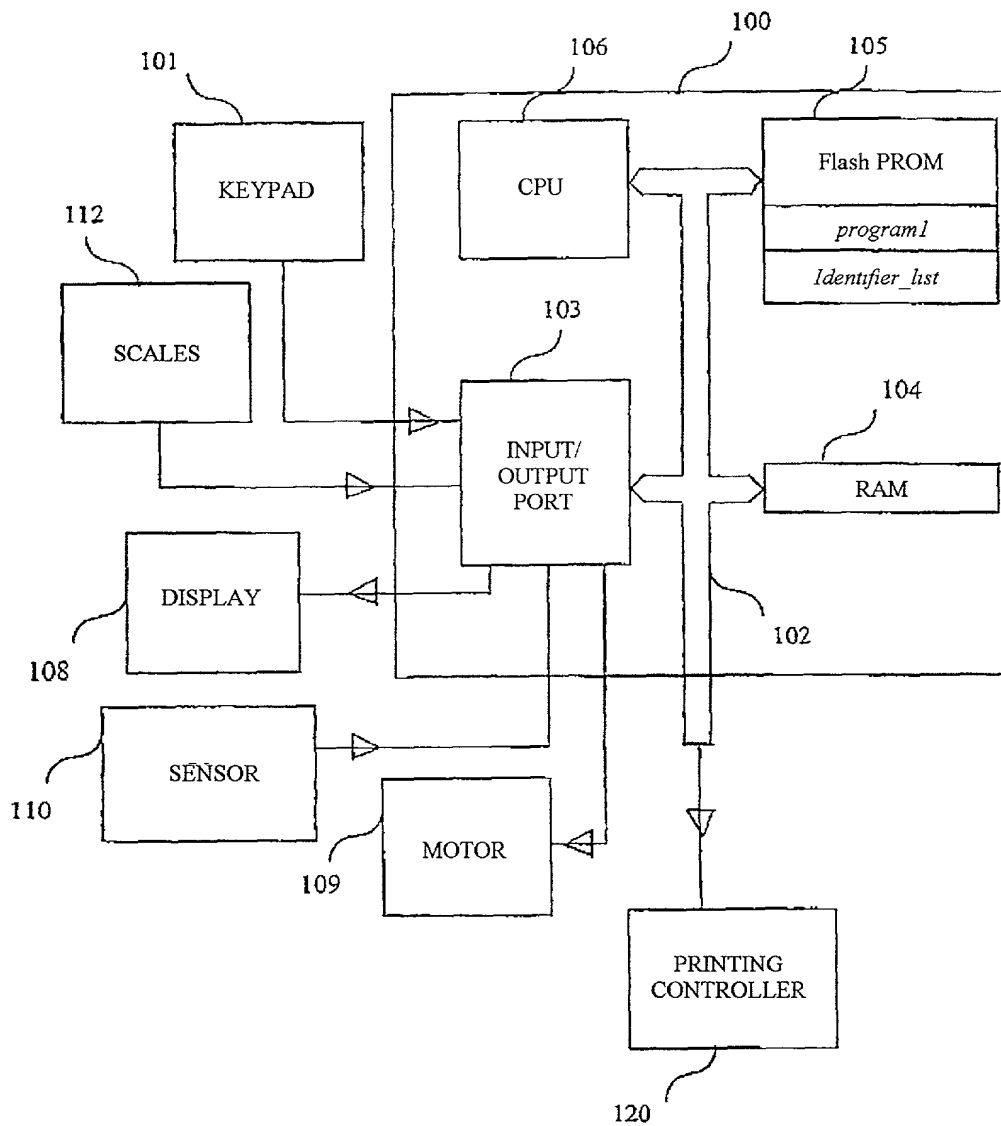


Fig. 2

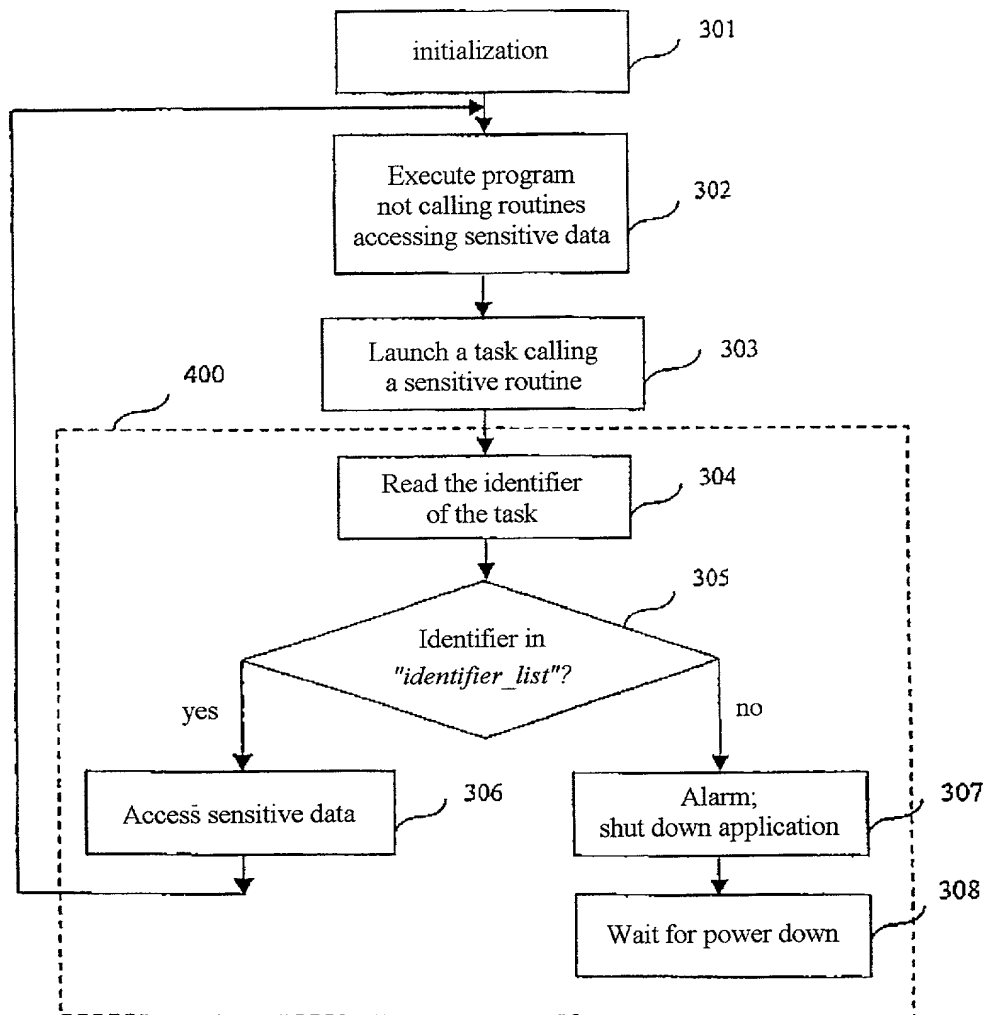


Fig.3

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Device and method for protecting sensitive data and franking machine using them.

the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application

Serial No. _____

on _____

and was amended

on _____ (if applicable).

☒ was filed as PCT international application

Number PCT/FR99/02992

on December 2, 1999

and was amended under PCT Article 19

on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations. §1.56(a).

I hereby claim foreign priority benefits under Title 35, United State Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

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COUNTRY (if PCT indicate PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
FRANCE	9816550	December 29, 1998	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national of PCT international filing date of this application:

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U.S. APPLICATIONS		STATUS (Check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT APPLICATION NO	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (IF ANY)		

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
DATE 5/10/2001	DATE 3/16/2001	DATE